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undertaking of Mr. Erskine. Referring to the alleged discovery of gold-fields in South-Eastern Africa, he said the representations of Karl Mauch, who, in company with Mr. Hartley, had explored the country north of Natal, were thoroughly credited by the colonists, though as yet very little gold had been obtained. Mauch was actuated by the desire that Germany should have its Livingstone, and he had undertaken to make his way through Africa from the Cape of Good Hope to Alexandria. It was his intention to acquire, by a lengthened residence in various parts, such knowledge of the people and the products as might prove of value to the world. He himself, after communicating the intelligence of his discovery of a gold region, left it to others to turn the information to account, considering that his mission was that of an explorer rather than that of an adventurer. Under the influence of his representations, a party was formed in the Transvaal Republic, of eleven men, who proceeded, fully equipped, to the alleged site of the gold-fields. They carried on their operations for a few weeks, but, after disagreeing among themselves, returned with only three ounces of gold and 5 cwt. of auriferous quartz, which has been since found to contain no gold at all. So far from being daunted by this, several other parties have since gone in search of the gold region; but, up to the date of the latest intelligence, no encouraging results have been obtained. Still he had seen, at Port Natal, trinkets made from gold obtained by the natives in the neighbourhood of the Limpopo, and had conversed with people who lived just beyond that river, who had assured him that from remote ages gold works had been carried on there. He did not think the Zulu country deserved the character of unhealthiness which had been given to it. Many who had resided there for years spoke highly of its healthiness and productive capacity. Around the Transvaal Republic the mineral wealth is great, and agriculture is being successfully pursued to some extent. The South-Eastern African states had before them a prospect of prosperity in a social and commercial sense which few people in England at present imagine.

The PRESIDENT, in closing the discussion, announced the termination of the session, and expressed a hope that the next session, to commence in November, would prove equally successful with the one now concluded.

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## ADDITIONAL NOTICES.

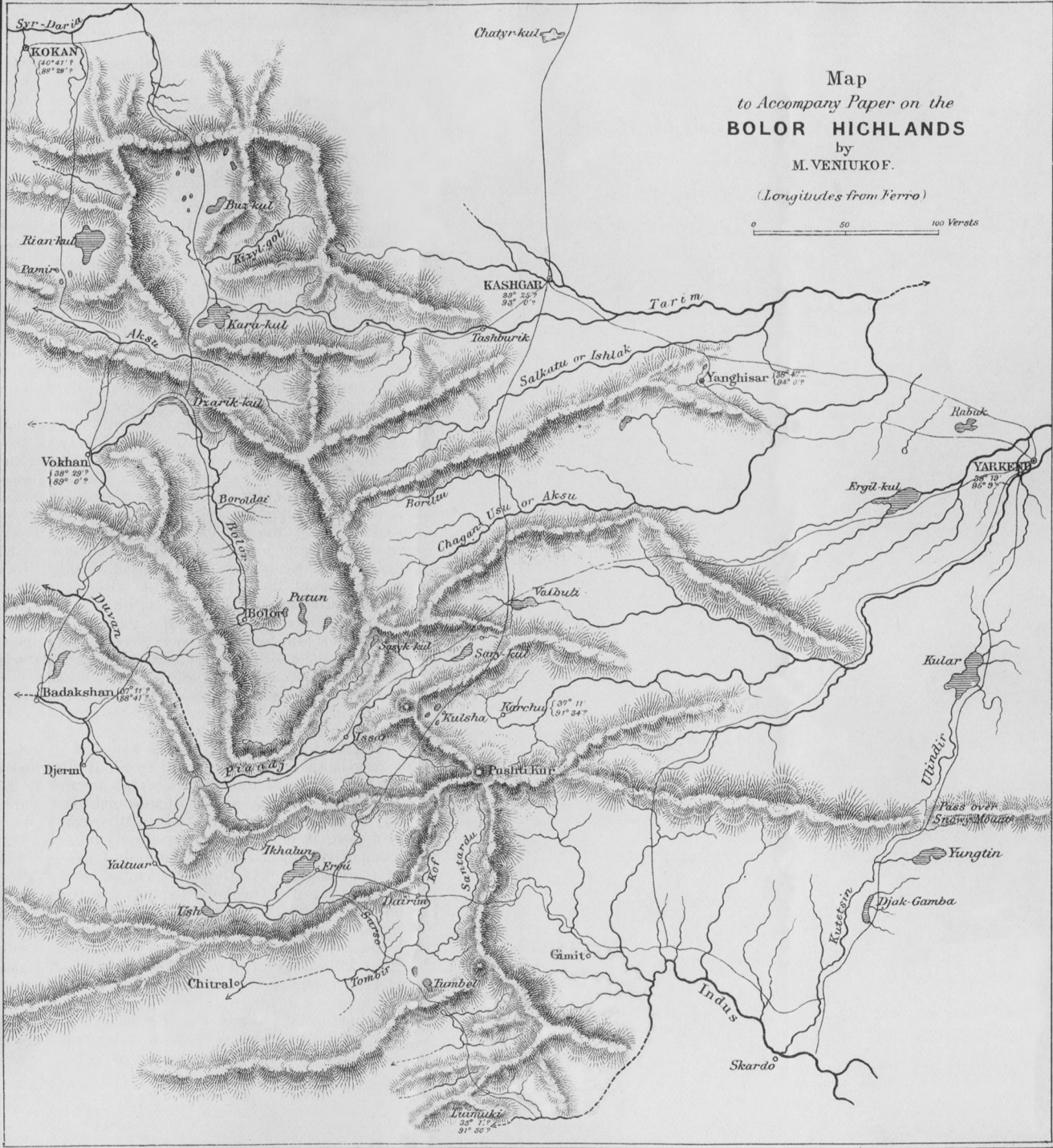
(Printed by order of Council.)

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- 1.—*Additional Remarks on the Bolor Highland.* By Colonel VENIUKOFF. Read at a Meeting of the Imperial Geographical Society on the 16th December, 1867, and translated by T. MICHELL, Esq.

It is nearly seven years ago since I first directed the attention of the Russian Geographical Society to two extremely curious documents, preserved in the archives of the *état-major* at St. Petersburg, which add to our meagre stock of information respecting the geography of the Bolor, and of the whole country generally between the Syr-Daria and Indus, from the meridian of Khodjent to Kashgar, Yarkend, and the territory of the Maharajah of Cashmere. Although our knowledge of the geography of the Bolor has not advanced during these seven years, yet many explorations have been made in the adjoining countries, while scientific conquests, coincident with political advances, have extended

(Longitudes from Ferro)

0 50 100 *Versts*

on one hand to the northern confines of the Bolor plateau, *i. e.*, to the Ferghannah valley; and from the banks of the Indus on the other, have penetrated across the northern slopes of the Himalayan range to the plains of Eastern Turkestan, named Khotan. These geographical successes are too well known to need consecutive account, more especially as the accompanying map, with the explanations which will be given in this paper, will embody all the explorations made up to the present time, excepting those carried out in 1867, and not yet made public.

I do not venture once more to direct the attention of our Russian geographers to the Bolor, solely because this plateau now almost adjoins our frontier, or on account of the probability of its becoming a field for our military activity; and consequently acquiring the interest of a question of the day. However important in their results, either present or prospective, may be the movements of Russia in Central Asia, it is not merely on this account that I am led to broach the subject of the trans-Ferghannah mountain region, more especially as the discussion of political changes is not within the province of this society. Such discussions are conducted by the Government, and the public are acquainted with them only from those short notices which the Government pleases to insert from time to time in the newspapers. In the daily press we occasionally meet with the observations of private individuals, which are generally very short, very superficial, and too evidently reticent. It therefore does not behove me, or anybody else engaged in the study of geography in Russia, to speculate upon the changes that may take place in the historical fate, not only of Central Asia, but of the whole of Russia, in consequence of the acquisition by Russia of great Mussulman territories in the basin of the Jaxartes, and of her approach to Bokhara—that centre of Islamism, the champions of which, in the persons of Kazy-Mullah, Shamil, and Mahomed-Amin, carried on a struggle against us in the Caucasus for 25 years. And whether such a contingency would be parallel to that which occurred in the first four centuries of the birth of Christ, when the Roman Empire spread itself from the Euphrates to the Danube, Rhine, and Tagus, and whether such an event would reduce Russia—the mistress of 60,000 square miles from the Volga to the Syr-Daria and Ili occupied almost exclusively by a Mussulman population—to the condition of modern Austria and Turkey, or whether, on the contrary, the vitality of the Russian race would gain the ascendancy,—these are questions which we need not consider. Our objects are more humble, and the political interest of the question only serves as an incentive to investigations purely scientific.

I also do not wish it to be considered that this article has a controversial object. However curious may be the opinion expressed by Sir H. Rawlinson respecting the authenticity and value of the MS. discovered by me in the military archives at St. Petersburg, I do not wish to dilate much on the disputed point, as polemical writing is not to my taste. Moreover a more experienced explorer than myself, M. de Khanikof, has already done his best to substantiate the conviction of genuineness which naturally forces itself on the mind on the perusal of the manuscript of the bold traveller who, starting from Northern India, penetrated into the Orenburg steppe, twice crossed over the Bolor mountain system, and explored almost the whole of it longitudinally. The dispute would, furthermore, prove a barren one, as neither I nor Sir H. Rawlinson have been in the part of Asia which forms the subject of this paper. Sir Henry has great knowledge of Iran, Mesopotamia, and Afghanistan, but he has never been north of the Kabul Daria, nor yet beyond the Indus.

With reference to the disputed point I beg to offer the following remarks, which, I must observe, are not dictated by any spirit of contention. Being desirous, after the expression of Sir H. Rawlinson's opinion, of verifying what

I have said with reference to the travels of Georg Ludwig von —, I took the first opportunity of re-examining carefully the MSS. that had been in my possession in 1860. This inspection convinced me, firstly, of the necessity of making a sketch, were it even in rough outline, of everything that had been written concerning Upper Asia; that is, it led to the compilation of the accompanying map, and, secondly, resulted in two interesting geographical discoveries hitherto unknown to science, and to which I shall refer further on. At all events, in no map or written account, is there any reference to a straight road from Yarkend to the Indus, in an almost meridional direction, and nowhere can we find any reference to the road from Ferghannah to Lake Karakul, a road which passes close to that celebrated Alai in Asia which forms the interesting point between the Bolor and the Tian-Shan.

The credit of these geographical discoveries is due, not to me, but to the truly enlightened courtesy of Count F. L. Heyden, member of the Council of our Geographical Society, who allowed me to rescue again from oblivion the same documents that had already been in my hands, and which had again been nearly lost among the dusty archives. Unfortunately I am unable to present here not only a complete analysis of these documents, but even so complete an extract from them as I would have wished: the materials were suddenly required for other purposes, so that they were in my hands but a short time. I did, however, see them, and I made a few extracts of geographical details, copying also the principal outlines of the map. It is the result of this work that I now venture to publish.

I must first of all observe that my principal authority this time will not be Georg Ludwig von —, who called forth the criticism of Sir H. Rawlinson, but an unknown Chinese traveller; may-be the Jesuit of the XVIIth century, whose march-route was translated from the Chinese by Klaproth in 1821.\* There are two copies of this itinerary in the archives of the *état-major* at St. Petersburg: one which had been in my hands in 1860, and this, although detailed, is rather roughly drawn up; the other is bound up in the form of an album and has hitherto been quite unknown. The matter is identical in both, but the album copy is compiled with greater care, and on a rather larger scale, in consequence of which I preferred using the latter, although I was obliged also to refer to the former, as some of the sheets of the album had been lost.

The travels of Georg Ludwig von — were, however, not lost sight of by me, and notwithstanding the objections that had been urged against them, I again had recourse to the MS. for reference respecting the country between Kashgar and the embouchure of the Luimuka into the Indus, or that part which did not form the subject of the purely topographical enquiries in my article on the Pamir.† I must state, though, that this time I endeavoured to avail myself as little as possible of the disputed source, and adhered principally to the text of my Chinese authority, nevertheless I must again assert that I see no reason for disbelieving also the narrative of Georg Ludwig von —. It must not be forgotten that this traveller wrote his account after 1800, while his journey was actually performed in 1769 or 1770 (the latter is evident by a reference to a certain battle which was fought about ten years preceding his journey from Kashgar to the Bolor, and respecting which we have undoubted historical testimony that it occurred in 1758). A great

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\* See Lord Strangford's remarks on this curious subject, in the present volume of the 'Proceedings,' p. 21. According to him, the narrative of Georg Ludwig von —, that of the unknown Chinese traveller, and a third MS., from which Arrowsmith derived the information mentioned in the note on the following page, all bear internal evidence of being written by one person.—[Ed.]

† 'Journal of the R.G.S.,' vol. xxxvi., p. 248.

many things might consequently have become confused in his memory, many jottings made in his diary might have become illegible, and, therefore, not utilised. In this way I reconcile some small discrepancies which exist between his statements and more recent discoveries.\* The accompanying map and succeeding observations will serve, as far as necessary, as a supplement to what may still be said with respect to his manuscript.

The route from Yarkend southwards, I must first of all observe, can be so correctly traced by scale on the map that I think it quite possible to bring it down to the banks of the Indus, almost opposite Skardo, with the position of which we have been well acquainted since the time of Cunningham and Strachy. It is true that in the Chinese itinerary there is no town of Skardo, but there appears the large river Kutezin, which cannot be taken for any other branch of the Indus than that (the Shigar) which discharges itself near Skardo. The route of our traveller then leads westwards, and even north-westwards, and leads us across the Bolor (or Himalayas, as both terms may be used, as I have already stated) to Dairim, Yabtuar, and Badakshan. I would here direct attention to this termination of the route at Badakshan, as the situation of this locality is sufficiently well known to us.

The following topographical details occur on this route which is laid down on the map, and which, I apprehend, is but little known only because it is a very difficult one, notwithstanding that it leads by the shortest line from Yarkend to Cashmere.

From Yarkend the road runs first for 15 versts in a south-east direction, and then intersects the River Aturah, doubtless the Youl-Arik of Klaproth's map.

Beyond the Aturah the road ascends and then descends to the *Elghir* rivulet, which flows into Lake Kular, and is 35 versts long. Lake Kular evidently belongs to the class of the same Alpine lakes, many of which are shown on Johnson's map of the territory of the Maharajah of Cashmere, and which are so numerous throughout the whole Boloro-Himalayan Highland, from the sources of the Indus to Sary-kul, Kara-kul, and Rian-kul. Kular is situated on a plain surrounded, however, by mountains on the north-west (Gornak), on the west (Butir), and on the south (Bunghi-Djmani). The last mountains are covered with snow. Out of them flows the *Ulandir* River, the southern affluent of the Kular.

The road from the banks of the Kular trends along this same Ulandir; first for 35 versts along a plain, and then through a pass. The whole valley of the Ulandir exceeds 70 versts in length. The upper course of the river runs in the high, snowy mountains, which are marked on the march-route as the boundary of Thibet. Beyond a high descent on the south, the road extends along the valley of the Kutezina river, the whole length of which to the Indus is about 120 versts. The valley of the Kutezina is very deep, and so obstructed with masses of rock, that at one part the road makes a detour and ascends an adjoining plateau, where it passes close to the alpine lake Djak-Gamba. The elevation of the ground around Lake Djak-Gamba is so great that the snow only disappears off it in the month of July; its height is not less than 13,000 feet above the level of the sea.

The road bifurcates within 20 versts of the Indus. One branch, the shortest, runs to the s.s.e., to the banks of this river, and terminates at Dimganga, which place I have not as yet been able to find on European maps; the other and longest branch turns to the west and proceeds beyond the Bolor. This part of the route intersects the following tributaries of the Indus:—The Pungbu, with

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\* It would be interesting to know whether these explorers did not make use of the labours of Georg Ludwig von — *without knowing his name*. For instance, whence did Arrowsmith procure in 1834 the configuration of the Bolor River, Lakes Kara-kul and Rian-kul, and of the Yaman Daria River?

the branch of the Ongo, the Utranghi, and Ghermuk. After the falling of the Tugtakhiru with the latter river, the road runs towards a snowy pass across the Bolor situated at Olgomurdi mountain. After this it intersects the Santardu rivulet, which I hold to be the commencement of the Kamekh of Kiaffiristan, and the source of which is situated at about 35 to 40 versts from the point of crossing. At its source there are glaciers and *moraines*, or at all events blocks of ice.

Beyond Santardu the road intersects the Kof \* Rivulet of the same Kameha system. Here, not far from the right bank of the Kof, on a high rock, stands the town of Dairim, already marked on Arrowsmith's map of Burnes' 'Travels,' namely, at the upper course of the Kameha. At Dairim grapes are cultivated in the valleys and on the southern slopes, a fact which serves as an important characteristic of the country and climate, and partly of the customs and religion of the inhabitants. We must not forget that among the more southern inhabitants of Kiaffiristan, bordering the Cabul-Darya, wine making is very general, as testified by Mullah-Nedumb, Raverty, and Masson. On reference to the account of Georg Ludwig von —, we find that he also drank wine on the banks of the Indus near Luimuka, as also northwards under 36° of latitude, which, in my opinion, presents an argument not devoid of weight in favour of the accuracy of his statements, inasmuch as not having had any traveller to precede him in these regions, he could not at haphazard have invented a fact which is unanimously confirmed by three European authorities (who did not, it is true, penetrate very far into the country), as well by the unknown Chinese traveller, who went over the same ground in a transverse direction.

From Dairim the road proceeds to the westward, parallel to a rivulet, on the southern banks of which there are lapis-lazuli excavations. Here it is, I apprehend,—without asserting it, however, positively,—that our Chinese traveller intersected the route of the enigmatical German.

Farther on the road leads to the small town of Erghen, situated on the banks of the Gkhalun Lake. The direct distance from Dairim to Erghen is a little more than 40 versts, and on this extent occurs the river which I am inclined to identify as the Ardinig of Georg Ludwig von —, and at the same time as the commencement of the Sharua,† *i.e.* the Badakshan branch, Amu-Daria. This rivulet, at the point at which, farther to westward, it receives the overflowing waters of the Gkhalun Lake, bears the appellation of the Ubgaritu, and on its banks we again meet with vineyards. After this it falls into lake Ush, and flows thence beyond the boundaries of Kiaffiristan, past Yabtuar, in the direction of Badakshan, where our march-route turns northwards, into the valley of the Bolor river.

To these details I can add nothing at present, as, for the reasons already stated, I was not able to take a sketch, or copy the description of the itinerary. It is easy, however, to see that the route just described passes through the most unknown countries, and that the portion of it from Yarkend to the Indus fills up at once the void which exists on Klaproth's map, and which is designated on it as Little Thibet. I must also add that no mud camping grounds are shewn on the march-route in neighbourhood of Kular Lake; while many temples and monuments, of course of Buddhistic origin, are marked along the portion of the road which adjoins the Indus. The region lying to the north of Cashmere and the Indus, was, according to tradition, the birthplace of Buddha.

I shall now direct attention to another interesting road, namely, that from Kokan to Kara-kul.

\* This river, it must be supposed, is the same that occurs in Arian's description of the campaigns of Alexander the Great.

† In spite of what is marked on my little map of 1861, where the Ardinig is hypothetically made to enter the system of the Kamekha.

The road from Kokan trends first to the east, and probably only a little eastward of Marghilan (not shown in the itinerary) turns to the south; here it bends round a small sub-alpine lake, Lari-kul, and enters the Tamuk-Su Valley, a river already known, as it appears, under the name of the Kamuk-Su on European maps.

Gradually ascending the Tamuk-Su, the road leads up to the pass of the Danur-Tau range, or the western continuation of the Tian-Shan, after which it runs along a high mountain plateau dotted with lakes. Among these the largest is called Buz-kul, which is situated not more than 70 versts from Kara-kul and Rian-kul, and evidently covers the crown of the upheaval known to the westward under the name of Mangulak, and on the south-westward forming the Pamir.

Descending from the plateau the traveller enters the valley of the Kara-gol River, already known from the description and map of Georg Ludwig von —, and also from Klaproth's map. Then, somewhat below the confluence of this river with the Kizyl-gol, the road leads out to Kara-kul, and runs thence, through the same narrow valley described by the German, to the banks of Dzarik-kul, and beyond, on one side to the Bolor, and on the other to Vokhan, just as shewn on my map of 1861.

I might adduce further interesting particulars from the same Chinese source respecting the roads from Kashgar to Yarkend, and along the Gundinir River in the direction of Chatyr-kul Lake. But as these roads lie beyond the confines of the Bolor mountain system it will be sufficient merely to mention them, observing that the route northwards from Kashgar will, in all probability, be described in a memoir by those persons who took part in the Chatyr-kul expedition of this year.

Such are the few, though not unimportant particulars which I wished to make generally known as geographical novelties, rescued from oblivion, thanks to the facilities afforded me by Count Heyden. I shall now attempt to give a brief sketch of the changes which the geography of High Asia will present consequent on the discovery of these new materials. My map, which accompanies this article, is an attempt to represent at a glance the principal features of the Boloro-Himalayan system, and I must therefore say a few words about it. The map was constructed from the following materials:—

1. All the countries from the Syr-Daria and the neighbourhood of Khodjent and Djuzakh, to the south of that river, according to Russian maps. The astronomical points are taken from Feodoroff, Lenim, Butakoff, Golubeff, and Struve.\*

2. The Ferghannah Valley and the affluents of the Syr-Daria, between Kurtka and Khodjent; according to Klaproth's map of 1836, my own of 1861, and Struve's of 1867. But the present map differs materially from all the preceding maps, and is, strictly speaking, the result of a special enquiry, which I have not as yet completed in detail. The astronomical points of the Jesuits and of Abulfeda have been discarded by me; but, on the other hand, I have not blindly followed M. Struve. Thus I have placed Kokan, Marghilan, Namangan, Andidjan, and Ush, considerably more to the north than they are made to appear on his small map of 1867. A more correct delineation of the features of the country is obtained by the way in which I have elaborated existing materials; and I hope that correctness of the principal bases of my map will be confirmed by future surveys.

3. The Valley of the Zariafshan—according to the map of Khanikof, with

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\* For the upper course of the Syr-Daria, along both banks, as far as Chatyr-kul Lake, the explorations of Mr. Poltoratski and Baron Osten-Sacken might have been used; unfortunately, the result of their travels has not been published as yet.



the corrections made in 1858. The upper part of the valley I have moved a little more to the south (without altering its outline), and I have also marked the hypothetical Lake of Iskender-kul, which appears, on Struve's map, at the upper part of the left source of the river.

4. The sea of Aral, according to Butakoff; and the steppes to the eastward of it, according to the maps of the Military Topographical Dépôt.

5. The River Amu-Daria from Chardjui to its mouth, according to Russian surveys of 1858 and earlier; the Delta according to Butakoff. The astronomical points from Struve and Butakoff.

6. The country on both sides of the Amu-Daria, from Chardjui to Kunduz, between the Hindu-Kush, Paropamitz, and the Fan-tan mountains—according to Burnes, Khanikof, and Vámbéry.

7. Khorassan to the west of Herat—from our maps of 1858-65, and the astronomical determinations of Thuillier, Fraser, Lemu, and others.

8. The region east of Herat to the Hindu-Kush—according to Burnes and other English travellers.

9. The Valley of the Kabul-Daria—according to Colonel J. Walker; and for its left affluents, Macartney's map in Elphinstone's 'Travels,' and that of Arrowsmith in Burnes; Lumsden's, however, I was not able to refer to.

10. The River Indus and its affluents above and below the Himalayas—according to the English maps of Strachey, Montgomerie, Waugh, and Colonel Walker, though only in general outlines, as these localities are beyond the Turkistan and Bolor Plateaux.

11. The country from Leh to Khotan, also in general features—according to Johnson.

12. The road from Yarkend to the banks of the Indus, through Little Thibet, and thence across the Bolor range to Badakshan—according to the Chinese itinerary above mentioned.\*

13. The region between Sary-kul and Kunduz—from Wood's account.

14. The mountain region between the Indus and the Syr-Daria, along the Bolor chain and on both sides from it; according to my map of 1861, from which, however, I have been obliged to make two deviations in order to reconcile it with Struve's data: namely, I have placed more to the southward that part which adjoins Dairim, as also the source of the Zariafshan and the region north of it to the Syr-Daria.

15. Eastern Turkistan—from the maps of Klaproth, Berghaus, Kiepert, and partly from that of Mr. Zakharoff. Some peculiarities, however, of this last map, notwithstanding its minuteness of detail and careful finish, restrained me from using it too much, particularly as it has not been published and is not accompanied by any explanatory text. Similarly I made no use of the description of Altysnar by the late Valikhanof, who had no instruments with him during his travels and supplied no maps on his return, neither did he make any excursions in the neighbourhood of Kashgar.†

16. Lastly, I carefully studied the map attached to Vámbéry's travels, which is very similar to mine, with the exception of the outlines of Kiafiristan.

\* When I compiled my map, and wrote this article, I was not able to refer to Montgomerie's account, inserted in the last 'Journal of the Royal Geographical Society,' inasmuch as this Journal had not at that time reached St. Petersburg.

† In addition to this, the account of this talented traveller was written partly during his illness at Omsk, with the assistance of Colonel Gutkovsky, and partly at St. Petersburg, a year and a half after his journey, with the assistance of the maps of Zakharoff, Nifantseff, and even Georg Ludwig von — (an extract from whose MS. relative to Kashgar and the neighbouring regions was communicated to Valikhanoff by myself).

From this enumeration it is easy to see that I have tried to be impartial, and to avail myself of the best maps. If I have alluded with great reserve to one of these maps which has gained a certain notoriety in Russia, although it has not been published—and which is, therefore, not subject to criticism—namely, the map of Mr. Zakharoff, I consider I have done so not without just grounds. But anybody may convince himself how incorrectly the meridians and parallels are marked, and how inaccurately the rivers and mountains are delineated in localities with which we are now acquainted from surveys, as, for instance, the country south of Issyk-kul, where between this lake and the Naryn two parallel snowy ranges are shown, with no small number of arbitrarily-bending rivers. Let me now turn to my results.

(a) Some of the mountain-ranges on my map are marked darker than others, while some have merely the direction of their principal chains sketched out. By these *three* methods I wished to distinguish the degree of certainty of the geography of the different countries shown on the map. There where European surveys (Russian or English) have been made, or respecting which country there are *two* other sources of information, the mountains are shaded dark; where the country has been mapped only on a small scale, or mapped from neither Russian nor English surveys, the mountains are shaded lighter; and lastly, in the case of countries altogether unknown, blanks are left or hypothetical lines laid down. Every map, in my opinion, ought to contain on its face a geographical account of what is known and what still remains to be known.

(b) The map shows that the Bolor chain may be recognised as existing along the whole extent from India to the Syr-Daria, but not farther northward, as Humboldt supposed. At the same time the Bolor is not an independent range, but is a direct continuation of the Himalayas, describing an arc from the banks of the Brahmaputra—where its direction is parallel to the equator—to the banks of the Syr-Daria, where it almost coincides with the meridian.

(c) The system of the Bolor, like that of the Himalayas, does not consist of almost one straight water-parting between the basin of the Tarim on one side, and the basins of the Oxus and Jaxartes on the other. On the contrary, the water-separating ridge runs in a broken line, although the highest summits may probably rise along one certain axis, which may be drawn from the banks of the Indus, eastward of Luimuka, through Pishtikur, which we must suppose to be near Karchu, and through Tengri-Tiub, to the north-east of Karakul to Soliman's Throne near Ush. This axis, as may be easily perceived, is intersected by two rivers: in a direction from east to west by the principal source of the Oxus, and from west to east also by the principal source of the Tarim—the Yaman-Yar-Osteng. In other parts, with the exception of parallels  $37^{\circ} 20'$  and  $39^{\circ} 10'$ , it is evidently coincident with the water-parting, and gives rise on one side to the Suvat (Marilpass, Lendao) Kameha, Sharud, Bolor, Zariafshan (Aksu), and Asferakh-chan (Galinglik); and on the other to some small tributaries of the Indus and the principal tributary streams of the Tarim-Pol.

(d) These principal features cannot, in my opinion, undergo much change in the future, inasmuch as they are based on sources independent and confirmatory of each other. We are, of course, very poor in astronomical points for these localities; even those that we have are open to doubt, but then we have a network of rivers and roads. The latter are interesting, as they do not only consist of roads intersecting the Bolor transversely, but also roads running parallel to each other. In 1843, Humboldt was not so rich in facts, and could not consequently arrive at results fully satisfactory in his exposition of the geography of the Bolor; which exposition, however, must in fairness, without any exaggerated submission to his learned authority, serve as the constant point of departure for all later explorers.

(e) The roads to which I have referred are as follows :—

1. On the north, at the very edge of the Bolor system, and almost within it: the road from Kashgar to Ferghannah, through Ush, from whence in the south, is seen the beetling height of Soliman's Throne. This route, unfortunately, was not graphically described by those travellers who gave an account of it, *i.e.* by Mir-Isset-Ulla, and the author of the so-called Russian *marche route*. Notwithstanding the great antiquity ascribed to it by Humboldt, we are, up to the present moment, as ignorant as ever with regard to it; and it continues to puzzle those who attempt to compare the tracing of it on different maps, such as those of Klapproth, Berghaus, Kiepert, &c.

2. Throughout the centre of the mountain land, almost on the same parallel with the celebrated Pamir plateau, lies the road from Kashgar to Vokhan, where we can identify many minute geographical details in the account of Georg Ludwig von —, and in that of the unknown Chinese traveller.

3. More to the southward a transverse road runs from Yarkend to Badakshan, past Lake Sary-kul. The western portion of this route is well known to us from Wood's description, while with its eastern half, in addition to Klapproth's map of 1836, we are acquainted from the survey of Georg Ludwig von —.

4. Not far south from Sary-kul there is a new road across the Bolor from the upper source of the Sharud (Ardinig), and probably from the Sarkiad (the left affluent of the Piandj) to Valbiuni Lake. This road is consequently only a southern ramification of the road which leads westwards and south-westwards from Yarkend; it may, however, also be connected with Karchu, *i.e.*, form a separate line of route across the Bolor. In order to settle this point it would be very interesting to explore the route of Benedict Goetz, for if the existence of direct communication from the valley of the Arding to the valley of the Yarkend Daria near Karchu, and consequently near Pushtikur, be ascertained, in such case Elphinstone's assertion that the Oxus takes its rise near Pushtikur would be confirmed.

5. Farther to the south there is a road from the Northern Indus along the Tugtahiru to Dairim, and then on to Sharud. The information respecting this route contained in the Chinese march-route is so circumstantial that it may be compared with good itineraries for European countries; of course a more careful identification of names than could be done by me is to be desired. But doubtless such identification will soon be accomplished, as the great nation which rules on the banks of the Indus will not fail to send explorers to the mountainous region surrounding Ghilghil, who will be able to set at rest all doubts which may still be entertained with regard to the plateau between the upper course of the Sharud and the northern bend of the Indus.

6. We may accept as the southernmost of the parallel roads of the Bolor mountain system the one which leads from Yarkend, along the Yarkend-Daria and one of its affluents (? the Tisbuna) to Nagar, and to the above northern bend of the Indus. But this road may more justly be considered as running more parallel with the Kuen-Lun than with the Bolor.

7. As regards the longitudinal roads I am, as already stated, acquainted with three. Georg Ludwig von — leads us from the banks of the Indus, starting from Luimuka, to Kashgar, first, it is true, along the western, and then along the eastern slope of the Bolor. Both he and the Chinese traveller also mention two parallel roads from the Ferghannah valley leading almost due south; one leads along the Tamuk-Su River, past Lake Kara-kul to the town of Bolor; the other along the Kas-lush, past Rian-kul, and through Vokhan to Badakshan. The road from Karchu to the northern Indus may also be regarded as one of the parallel routes of the Bolor; it is particularly interesting, as it will afford a traveller the possibility of studying from the

eastern side the formation of the mountain knot between the Bolor and Kuen-Lun (the existence of which cannot now be doubted in spite of the opinion expressed by Thomson and Schlagentweit), as similarly the road from Luimuka to Kulsha lakes presents the means of observing the intersection of the Bolor by two, or even three, parallel ranges on the west, the northern of which may be called the Hindu Kush proper; the middle one is the Lopcha range, while the third, which is nearest to the Indus, and partly parallel to it, has as yet no name.

All the enumerated roads intersect each other in several knots, and it is evident that if we had the astronomical position of these knots the geography of the Bolor would be as perfect as could be expected for a region so difficult of access. Unfortunately we do not possess this information, and neither the determinations of Georg Ludwig von —, nor those of the Jesuits within the limits of the Bolor, can be accepted as a basis for any new labours. I have, therefore, made my *network* of routes, &c., rest on the smallest number of points lying however not very close to the longitudinal axis of the highland region. These points are Kashgar, Tashburik, Yarkend, Karchu, and the northern bend of the Indus to the east of the Bolor, Lake Sary-kul at the centre of its extension, and then Peshawur, Djerm, Varziminor (both these points are not astronomical, but connected with astronomical European surveys), and Khodjent on the west. I leave it to future explorers to correct the errors I may have made; at the same time, however, the labour of future researches may be rendered easier by the publication of the following approximate\* co-ordinates of the chief points of High Asia as they appear on my map:—

	North lat.	Long. E. of Ferro.
1. Kokan .. .. .	40° 39'	88° 27'
2. Centre of Mangulak plateau .. ..	40    2	88   43
3. Western extremity of Rian-kul ..	39   30	88   41
4. Vokhan .. .. .	38   23	88   45
5. Bolor .. .. .	37   31	89   44
6. Badakshan .. .. .	37    7	88   40
7. Ergben .. .. .	36   20	90   23
8. Embouchure of the Luimuka into the Indus .. .. .	35    0	91   48
9. Southern extremity of Djak-gamb lake	35   57	93   38
10.        "        Kular lake .. ..	36    9	93   43
11. Western extremity of Valbun lake ..	37   44	91   38
12. Source of Tapuar out of Kara-kul ..	39    9	89   42
13. Buz-kul lake .. .. .	39   41	89   27
14. Ush .. .. .	40   37	90   13

The 1st, 2nd, 13th, and 14th of these points are apparently not far from our frontiers, and not inaccessible to bold explorers from the north. I consider that the distance from Khodjent to Kokan is not more than 110 versts; 125 versts to the place where Georg Ludwig von — crossed the Mangulak; 150 versts to Rian-kul, 200 versts to Buz-kul, and lastly, 240 versts to Ush. Let us hope that these places will not long remain unknown, and that our subsequent knowledge of the geography of the Bolor will not be based on hypotheses and surmises, but on accurate data.

October, 1867.

\* Approximate probably within 3° 4' of latitude and 5° 7' of longitude; that is supposing always that the principal points, such as Kashgar, &c., are correct.